What is claimed is:

1. Perfluoroalkyl haloalkyl ethers having the formula:

$$(R_f^1)(R_f^2)NR_f^3OR_X$$

wherein R_x is a haloalkyl; R_f^1 and R_f^2 are independently straight or branched perfluoroalkyl groups, or, are independently straight or branched perfluoroalkylene groups bonded together to form a ring; $R_f^3$is a linear or branched perfluoroalkylene, and R_f^1, R_f^2, and R_f^3 can optionally and independently contain one or more catenary heteroatoms.

2. The perfluoroalkyl haloalkyl ethers of claim 1, wherein R_f^1 and R_f^2 are straight or branched perfluoroalkyl groups comprising from 1 to 6 carbons, or are straight or branched perfluoroalkylene groups preferably comprising from 2 to about 4 carbons bonded to each other to form a ring, and $R_f^3$is a linear or branched perfluoroalkylene having from about 1 to 6 carbon atoms, wherein R_f^1, R_f^2 and R_f^3 can optionally and independently contain one or more catenary heteroatoms.

3. Perfluoroalkyl haloalkyl ethers of claim 1, having the general formula:

$$(R_f^1)(R_f^2)NR_f^3OC_XH_yX_Z$$

wherein R_f is a perfluoroalkyl; x is in the range from 1 to 6; y is at least one; w is in the range from 0 to about 2, X is a halogen chosen from bromine, iodine, and chlorine; z is at least one; and w+y+z is equal to 2x+1.

4. The perfluoroalkyl haloalkyl ethers of claim 3, having the formulas c-$C_5F_{10}N(CF_2)_3OCH_2Cl$ and c-$C_5F_{10}N(CF_2)_3OCHCl_2$.

5. A process for removing contaminants from a substrate, the process comprising the step of contacting the substrate with a composition comprising a perfluoroalkyl haloalkyl ether of claim 1.

6. The process of claim 5, wherein the composition further comprises a surfactant.

7. A coating process comprising the steps of applying to a coating substrate liquid coating composition comprising the perfluoroalkyl haloalkyl ether of claim 1 and at least one coating material which is soluble or dispersible in the perfluoroalkyl haloalkyl ether.

8. The process of claim 1 wherein said coating material is selected from the group of perfluoropolyether, hydrocarbon and silicone lubricants.

9. The process of claim 1 wherein said coating material comprises from about 0.1 to about 10 weight percent of the coating composition.